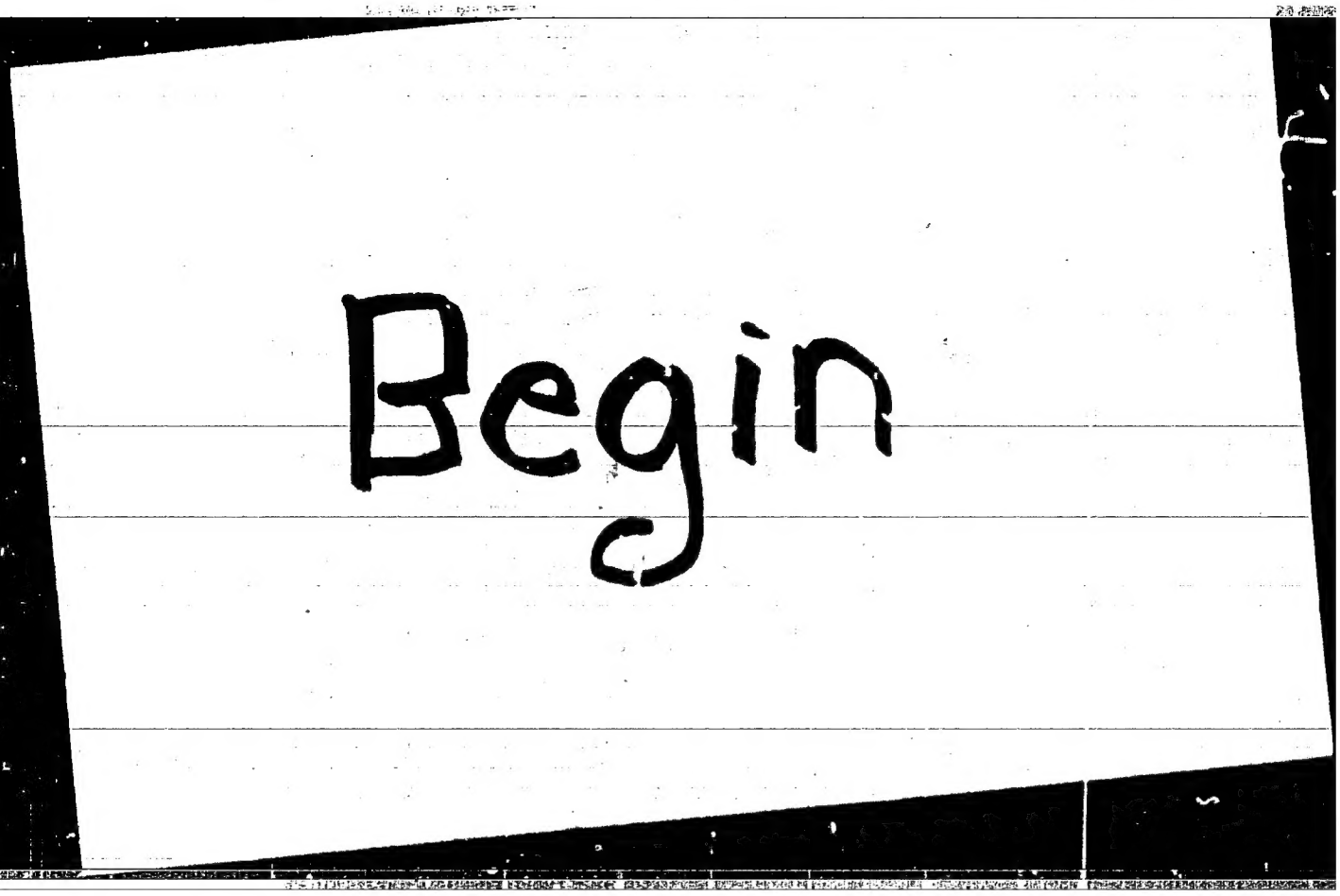

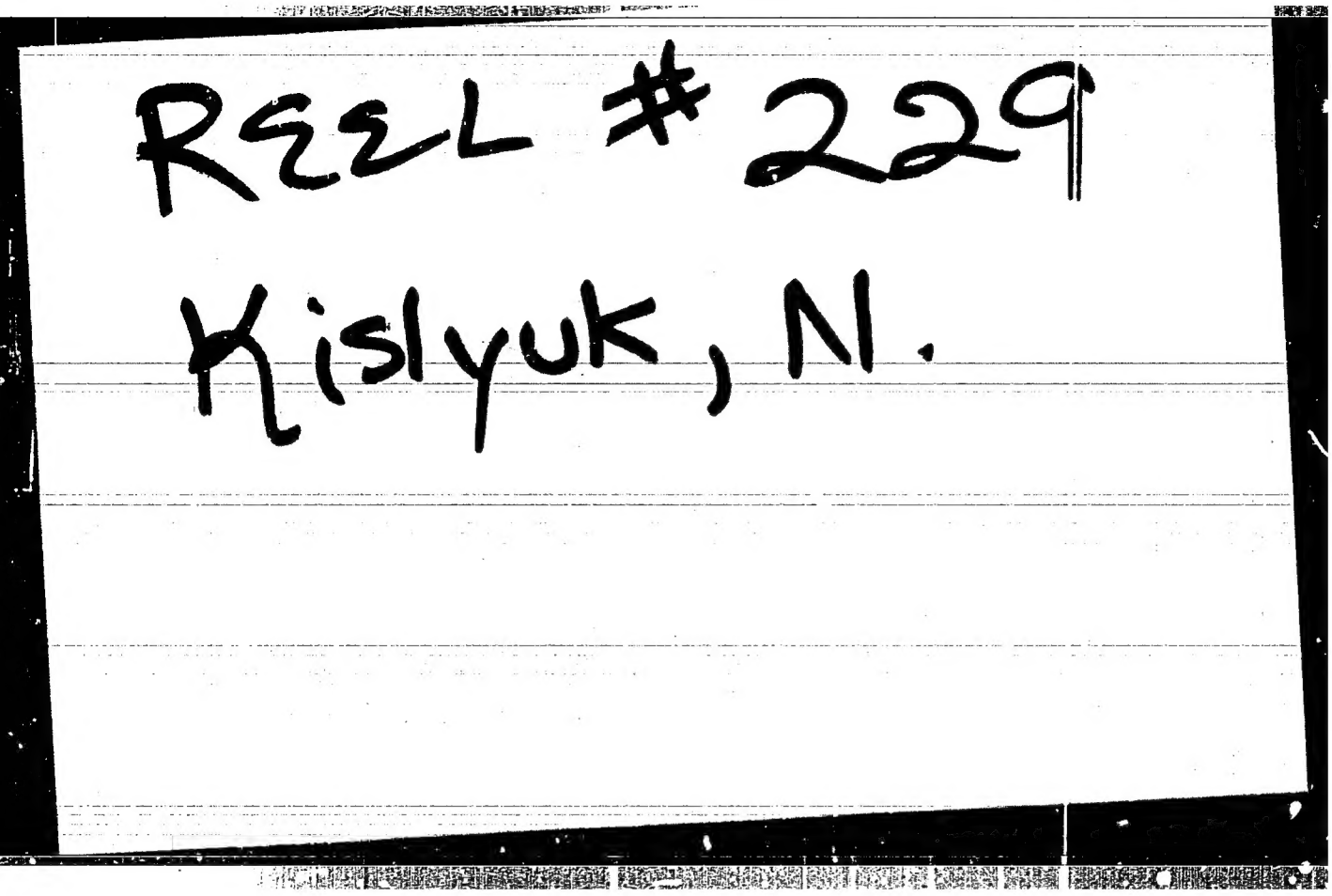

MOSKALENKO, S.I.; GAZOVICH, M.S.; BACHINSKIY, Yu.V.; TOMILIN, A.V.; MEDVEDEV, P.M.; LOMAKOVA, M.M.; GOLOVKOV, P.D.; GAYDUKOV, G.I.; ALEYNIKOV, V.V.; STEMIN, N.D.; MIRONOVA, V.V.; BELAVINTSEVA, Ye.S.; TSVETSINSKIY, S.V.; KHCHEPURNYY, P.; KOBZAR', M.K.; ROZHKOVA, Ye.S.; PELENTSINSKIY, V.N.; GORODYCHUK, V.K.; SHMYRIGO, V.F.; KISLYUK, M.

Fifty years in [illegible] sugar industry. Sakh.prom. 33 no.2:18 F '59. (MIRA 12:3)

(Shtepan, Georgii Viacheslavovich, 1888-)

KISLYUK, S.V., inzhener.

One-process hose knitting method using imitation lastex on two-system automatic hosiery machines. Leg. prom. 17 no.5:35-37 My '57.
(Knitting machines) (Hosiery industry) (MLRA 10:6)

BROVMAN, M.Ya.; VYDRIN, V.N.; YERMAKHIN, F.K.; KISLYUK, V.A.; KRAYNOV, V.I.; LEVINTOV, S.D.; RIMEN, V.Kh.; SEREBRYAKOV, A.N.; SHEYDER, B.E.

Method of controlling the tension in continuous rilling mills.
Stal' 25 no.7:629-631 Jl '65. (MIRA 18:7)

L 3422-66 EWT(1) GS/GW

ACCESSION NR: AT5023743 UR/0000/65/000/000/0040/0049

AUTHOR: Gavrilov, I. V.; Duma, A. S.; Kislyuk, V. S.; Kur'yanova, A. N.

TITLE: Selenocentric coordinates of 160 base points on the lunar surface

SOURCE: AN UkrSSR. Figura i dvizheniye Luny (Shape and motion of the Moon). Kiev, Naukova dumka, 1965, 40-49

TOPIC TAGS: lunar surface, moon, selenography

ABSTRACT: Measurements of the space coordinates of craters contained in the Schrutka-Rechtenstamm catalog (Schrutka-Rechtenstamm, G., Mitteilungen der Universitatssternwarte, Wien, 1958, 9, 17, 251-303) were made at the GAO AN Ukr. SSR. The results, together with the data of Schrutka-Rechtenstamm and R. B. Baldwin (Baldwin, R. B., The Measure of the Moon. University of Chicago Press, Chicago, 1963), served as the basis for the cumulative catalog of space coordinates of 160 base points presented in the article. Initial results of a solution of a concrete selenodesic problem are presented, and their accuracy is discussed. Calculations show that the center of mass of the moon is located somewhat to the northeast of the accepted center of its figure. "In conclusion, the authors thank N. A. Vasilenko and calculators L. N. Zimina and S. A. Zaslavskaya.

Card 1/2

L 3422-66

ACCESSION NR: AT5023743

for assistance in the computations." Orig. art. has: 4 figures, 4 tables, and 5 formulas.

ASSOCIATION: None

SUBMITTED: 12May65 ENCL: 00 SUB CODE: AA

NO REF SOV: 001 OTHER: 003

Card 2/2

KISLYUKHIN, V.

Rural hydroelectric power station built of precast reinforced concrete.
Sel'. stroi. 13 no.6:25 Je '58. (MIRA 11:6)

1.Starshiy inzhener Kirovskogo tresta "Sel'elektrostroy."
(Kirov Province--Hydroelectric power stations)
(Precast concrete construction)

KISLYY, A., nauchnyy sotrudnik

Yellow pear scale insect Quadraspidiotus pyri. Zashch. rast. ot vred. i bol. 10 no.6:31-32 '65. (MIRA 18:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut vinodeliya i vinogradarstva "Magarach", Yalta.

KISLYY, A.A., inzh.

Splicing of rail lengths for curved sections. Put' i put.khoz. 9 no.6:39-41 '65. (MIRA 1816)

1. Putevaya mashinnaya stantsiya No.121, stantsiya Zhulyany, Yugo-Zapadnoy dorogi.

MANYCH, A.D., inzhener-mekhanik; NOVOMIRSKIY, S.P., inzhener-mekhanik; DENISEN-KO, I.P., brigadir; SHCHERBINSKIY, A.V., kombayner, Geroy sotsialisticheskogo truda; KISLYY, A.P., kombayner, Geroy sotsialisticheskogo truda; VASIL'CHENKO, G.A., Geroy sotsialisticheskogo truda; BUTENKO, V.I.; POLUYAN, V., kombayner.

Please think about it. Znan. sila 32 no.1:6-7 Ja '57. (MIRA 10:4)

1. Direktor Azovskoy ordena Lenina Mashinno-traktornoy stantsii (for Manych). 2. Zamestitel' direktora Azovskogo uchilishcha mekhanizatsii sel'skogo khozyaystva. No.2. (for Novomirskiy). 3. 10-ya traktornaya brigada Azovskoy ordena Lenina Mashinno-traktornoy stantsii (for Denisenko). 4. Azovskaya Mashinno-traktornaya stantsiya (for Shcherbinskiy, Kislyy, Vasil'chenko). 5. Master proizvodstvennogo obucheniya Azovskogo industrial'nogo tekhnikuma trudovykh rezervov (for Butenko). 6. Uchashchiysya gruppy perepodgotovki brigadirov traktornykh brigad Azovskogo uchilishcha mekhanizatsii sel'skogo khozyaystva, Samarskoy Mashinno-traktornoy stantsii (for Poluyan).

(Combines (Agricultural machinery))

KISLYY, A.V., aspirant

Methods for estimating the effectiveness of insecticides. Zashch. rast. ot vred. i bol. 8 no.5:46 My '63. (MIRA 16:9)

1. Nikitskiy botanicheskiy sad, Yalta.
(Insecticides—Testing)

TIKHONOVA, N.A.; KISLYY, A.V., mladshiy nauchnyy sotrudnik

Effective method for controlling granary pests. Zashch. rast. ot vred. i bol. 4 no.2:26 Mr-Ap '59. (MIRA 16:5)

1. Zaveduyushchiy otdelom zashchity rasteniy Krymskoy oblastnoy gosudarstvennoy sel'skokhozyaystvennoy opytnoy stantsii (for Tikhonova).
(Crimea--Granaries--Disinfection)

KISLYY, G., mladshiy nauchnyy sotrudnik

Specific manifestations of loose smut. Zashch. rast. ot vred. i bol. 10 no.3:40 '65. (MIRA 19:1)

1. Ukrainskiy institut rasteniyevodstva, selektsii i genetiki, Khar'kov.

KISLYY, I., kand.tekhn.nauk (g.Kiyev)

Mapping underground municipal communications, water-supply and sewer systems. Zhil.-kom. khoz. 10 no.11:3 '60. (MIRA 13:11)
(Map drawing)
(Underground construction)
(Ukraine--Municipal services)

KISLYUK, I.M.

Notes on the anatomy of wood in Araucariaceae. Bot.zhur. 44 no.11:1624-1631 N '59. (MIRA 13:4)

1. Leningradskiy gosudarstvennyy ordena Lenina universitet im. A.A.Zhdanova.
(Araucariaceae) (Wood--Anatomy)

KISLYY, I. M.

KISLYY, I. M.: "Morphographic-morphometric characteristics of the earth's surface in the Ukraine near the Sea of Azov." Min Higher Education Ukrainian SSR. Khar'kov Order of Labor Red Banner Agricultural Inst imeni V. V. Dokuchayev. Chair of Geodesy. Khar'kov, 1956. (Dissertation for the Degree of Candidate in Technical Science).

Source: Knizhnaya letopis' No. 28 1956 Moscow

KISLYY, I.M., kand.tekhn.nauk

Conference on the coordination of research in the field of geodetic engineering in the Ukrainian S.S.R. Izv.vys.ucheb. zav.; geod.i aerof. no.5:179-180 '58. (MIRA 11:12)
(Ukraine--Geodesy)

KISLYY, I.M. [Kyslyi, I.M.]

Morphometrical characteristics of the surface of the Azov region of the Ukraine. Dop. AN URSR no.6:669-670 '58. (MIRA 11:9)

1.Nauchno-issledovatel'skiy institut gorodskogo stroitel'stva akademii stroitel'stva i arkhitektury USSR. Predstavil akademik AN USSR V.G. Bondarchuk [V.H. Bondarchuk].
(Azov region--Topography)

26-58-5-39/57

AUTHOR: Kislyy, I.M., Candidate of Technical Sciences (Kiyev)

TITLE: The Past of the Lysogor River (Proshloye reki Lysogor)

PERIODICAL: Priroda, 1958, #7 Nr 5, pp 112 - 113 (USSR)

ABSTRACT: A short report is given on conditions of the Lysogor River of the Ukraine, Chernigov Oblast'.

AVAILABLE: Library of Congress

Card 1/1 1. Lysogor River - History

22(1) SOV/3-59-3-35/48

AUTHOR: Kislyy, I.M. Candidate of Technical Sciences

TITLE: Coordination of Research in the Field of Engineering Geodesy in the UkrSSR (Koordinatsiya issledovaniy v oblasti inzhenernoy geodezii v USSR)

PERIODICAL: Vestnik vysshey shkoly, 1959, Nr 3, p 70 (USSR)

ABSTRACT: The basic problem of the First Republican Conference on Questions of Engineering Geodesy that took place in Kiyev was to coordinate the research work conducted in the Ukraine. Over 300 specialists from scientific-research institutes and vuzes, design and production organizations of the Ukraine and the RSFSR participated in discussing these problems. Engineering geodesy is, first of all, geodesy in the building trade. The reports delivered by A.M. Kas'yanov, Director of the Nauchno-issledovatel'skiy institut gradostroitel'stva i arkhitektury USSR (Academy of Building and Architecture UkrSSR) and Corresponding Member of the Academy, and by Doctor of Technical Sciences, Pro-

Card 1/4

Coordination of Research in the Field of Engineering Geodesy in the UkrSSR

fessor N.G. Viduyev (of the same institute) - "The Present State and Problems of Scientific Research in the Field of Engineering Geodesy" were the most important of the Conference. Over 20 persons delivered reports to the Conference. These reports were delivered by Docent V.Yu. Koiseyev (Kiyevskiy inzhenerno-stroitel'nyy institut - Kiyev Engineering and Construction Institute) on "Application of New Engineering Methods in Surveying and Examining Underground Constructions", Engineer G.D. Onar (Kiyevmetrostroy) - "Geodetic-Surveying Work at Building Sites of Tunnels and Subways", Engineer M.A. Brozin (Kiyevmetrostroy) — "Geodetic Work in Bridgebuilding", Professor V.G. Leontovich (Kiyevskiy khudozhestvennyy institut - Kiyev Institute of Art) - "Instruments, Required for Carrying Out Work in Engineering Geodesy", and others. The orators welcomed the opening of a Department for Engineering Geodesy at the Kiyev Engineering and Construction Institute, and the establishing of a

SOV/3-59-3-35/48

Coordination of Research in the Field of Engineering Geodesy in the UkrSSR

Section of Engineering Geodesy at the UkrSSR Academy of Building and Architecture. The conference resolution indicated the basic problems of engineering geodesy science for the next 7 years. These include: solving problems of geodetic electronics, of engineering-geodetic planning and its theory, the theory of engineering geodesy, and taking of large-scale aerial photographs. It is intended to make devices for range finding, for town geodetic work, geodetic observations of deformations in constructions, geodetic work at building sites, for hydrotechnical construction, road construction, and for underground communication surveys. The conference material will be published in a special collection by the Academy of Building and Architecture of the UkrSSR.

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SOV/3-59-3-35/48

Coordination of Research in the Field of Engineering Geodesy in the UkrSSR

ASSOCIATION: Nauchno-issledovatel'skiy institut gradostroitel'stva Akademii stroitel'stva i arkhitektury USSR (Scientific Institute of Town Building of the UkrSSR Academy of Building and Architecture).

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3(4) SOV/154-59-3-14/19

AUTHOR: Kislyy, I. M., Candidate of Technical Sciences

TITLE: Results of the Work of the Scientific-technical Seminar for the Leading Workers in the Field of Applied Geodesy for 1957-1958 and the Plans for 1958 - 1959 (Itogi raboty nauchnogo tekhnicheskogo seminara rukovodyashchikh rabotnikov v oblasti inzhenernoy geodezii za 1957 - 58 g. i plan raboty na 1958-59 g.)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i aerofotos"-yemka, 1959, Nr 3, p 143 (USSR)

ABSTRACT: The scientific-technical seminar for leading workers in the field of applied geodesy was organized by the Chair of Geodesy of the Kiyevskiy inzhenerno-stroitel'nyy institut (Kiyev Civil Engineering Institute), by the Department of Applied Geodesy of the Nauchno-issledovatel'skiy institut gradostroitel'stva Akademii stroitel'stva i arkhitektury Ukrainskoy SSR (Scientific Research Institute of Town-building of the Academy of Building Engineering and Architecture of the UkrSSR), and finally, by the KO VAGO. The seminar is already in its second year. Its aims are: Betterment of qualifications, exchange of experience made in production, advice on operations of applied geodesy. The following

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Results of the Work of the Scientific-technical Seminar SOV/154-59-3-14/19
for the Leading Workers in the Field of Applied Geodesy for 1957-1958 and
the Plans for 1958-1959

participate in the seminar: Ukrainskoye aerogeodezicheskoye predpriyatiye (Ukraine Aerogeodetical Enterprise), Geotopos"yemka, VTIZ, Glavkiyevstroy, Ukrgiproshakht, Ukrgiprosakhar, Giprozdrav, Ukrgiprogaz, Kiyevgiprotrans, Giprorechtrans, etc. Following suggestions made by these organizations, the following problems were dealt with in the seminar: large-scale aerial photography of cities (Giprograd); electronic methods in the surveying of subterranean constructions (Ukrsantekhmontazh); new methods of pegging in industrial and civil constructions (Promstroyproyekt, Glavkiyevstroy); application of light locating (svetolokatsiya) in surveying (Giprotechtrans); principles of radiogeodesy (Ukrgeologiya); new geodetic instruments and apparatus; application of hygroscopic instruments for the orientation of subterranean production (Kiyevmetrostroy); application of aerial photography and of the echo sounder in hydrographic operations (Glavnoye upravleniye Dneprovskogo rechnogo parakhodstva - Main Administration of the Dnepr River Navigation); municipal geodetic frame networks (Geotopos"yemka); practice of radiogeodetic surveying (Ukrneftegeofizika). From September

Card 2/3

Results of the Work of the Scientific-technical Seminar SOV/154-59-3-14/19
for the Leading Workers in the Field of Applied Geodesy for 1957-1958 and
the Plans for 1958-1959

1957 to May 1958 the seminar was regularly held twice a month. 20 lectures were delivered; from 70 to 300 persons were assembled each time. The following lectures were heard in the course of the new year: A. M. Golyshev, head of the department of state geodetic supervision of the MVD USSR (Ministry of Internal Affairs of the UkrSSR) "Survey of Geodetic Works of the Official Organizations of the Ukrainskaya SSR"; Professor N. G. Viduyev, Doctor of Technical Sciences, "The Present State of the Error Theory in Geodetic Measurements"; Professor N. I. Tovstoles, Doctor of Technical Sciences, "Experimental Aerial Photography for the Technical Investigation of Auto-highways". Twenty more lectures are provided.

ASSOCIATION: Nauchno-issledovatel'skiy institut gradostroitel'stva AS i A Ukrainskoy SSR (Scientific Research Institute for City Building of the Academy of Building Engineering and Architecture of the Ukrainskaya SSR)

Card 3/3

KISLYY, I.M., kand.tekhn.nauk

Leveling rods manufactured by the Kalinin Economic Council. Geod. i kart. no.1:76 Ja '60. (MIRA 13:6)
(Surveying--Instruments)

KISLYY, I.M.

Slopes and elevations of drainage basins in the northern part of the region of the Sea of Azov. Sbor. rab. po gidrol. no.2:144-146 '61. (MIRA 15:2)

1. Nauchno-issledovatel'skiy institut gradostroitel'stva Akademii stroitel'stva i arkhitektury USSR.
(Azov Sea region--Valleys)

KISLYY, I.M. [Kyslyi, I.M.]

Studying the influence of the scale of a topographic map upon the accuracy of determining morphometrical indices. Geog. zbir. no.6:152-156 '62. (MIRA 15:9)

(Topographic maps)

18(7) SOV/21-59-1-12/26

AUTHORS: Samsonov, G.V. and Kislyy, P.S.

TITLE: A New Method of Making Pipes and Rods of Heat-Resistant Powder Metals and Their Compounds (Novyy sposob izgotovleniya trub i sterzhney iz poroshkov tugoplavkikh metallov i ikh soyedineniy)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1959, Nr 1, pp 46-48 (USSR)

ABSTRACT: This new method of making pipes or solid (without hole) bodies of heat-resistant and non-plastic metal powders or their compounds such as carbides, nitrides, borides, silicides, or sulfides, consists in pressing them in a mold, with the use of a punch with a central rod (for making pipes) or without such a central rod (for making solid bodies). The metal powder is mixed with 2-4% starch paste, which is the best plasticizer for this purpose. The pressed bodies are sintered

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A New Method of Making Pipes and Rods of Heat-Resistant Powder Metals and Their Compounds

in an electric resistance oven at 600-700° C, for 1/2 hour, and are then heated to a clinkering temperature for 5-10 hours, whereupon the furnace and works are cooled gradually to 900-1000° C. Shrinkage averages 12-20%. Porosity changes from 5 to 12%. There are 1 diagram and 5 Soviet references.

ASSOCIATION: Institut metallokeramiki i spetssplavov AN UkrSSR (Institute of Metal-Ceramics and Special Alloys of AS Ukr SSR).

PRESENTED: September 27, 1958, by V.N. Svechnikov, Member of the AS UkrSSR

15 (2), 15 (6)

AUTHORS: Neshpor, V. S., Kislyy, P. S. SOV/131-59-5-9/12

TITLE: Hot Pressing of Chromic Boride Powder and Some Properties of the Sintered Material (Goryacheye pressovaniye poroshka borida khroma i nekotoryye svoystva spechennogo materiala)

PERIODICAL: Ogneupory, 1959, Nr 5, pp 231-236 (USSR)

ABSTRACT: In the present paper, the authors investigate the sintering conditions of the chromic boride powder which is obtained by the reaction of chromic oxide and boron carbide. The chemical composition of chromic boride is given in table 1. The sintering of the chromic boride powder was done by hot pressing by means of a laboratory lever press (Fig 1). At a temperature of 2000 ± 50°, a pressing effect of 180 kg/cm^2 and a sintering time of 10-12 min, it was possible to obtain samples with the minimum porosity of 3% (Fig 2). The melting temperature of the CrB_2 ascertained by the authors is 2200 ± 50° which comes near the temperature ascertained by Markovskiy (Ref 3). Figure 3 shows the relative change in weight at 1200° of the CrB_2 samples related to 1 cm^2 surface

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and figure 4 represents the curve of the change in weight. This change in weight is a function of the time of oxidation. The oxidation stability of the borides ascertained by Kotel'nikov (Ref 14) corresponds to the one in the present paper. The coefficients of expansion of three samples with different porosities at 500°, as well as the resistance to pressure and rupture of chromic boride samples with different porosities, are further indicated. Some properties of the chromic boride are given in table 2. Concerning the stability of the chromic boride against the action of active reagents, the authors of this article refer to the papers by Kotel'nikov (Ref 14) and Vodyleva skaya (Ref 22). The indicated properties of the chromic boride permit its use as a constituent of heat-resistant alloys. A shortcoming is its brittleness which can be reduced by cementing the boride grains with a metal binding agent. The cemented chromic boride can be used for the manufacture of nozzles for spraying fused metals, of crucibles and coats of thermo-elements for the temperature measurement in metallurgical furnaces. There are 4 figures, 2 tables, and 29 references,

Hot Pressing of Chromic Boride Powder and Some Properties of the Sintered Material 307/131-59-5-9/12

17 of which are Soviet.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy and Special Alloys of the AS UkrSSR)

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67839
SOV/180-59-6-20/31

AUTHORS: Kislyy, P.S., and Samsonov, G.V. (Kiyev)

TITLE: High-Temperature Semiconductor Thermocouples

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 6, pp 133-137 (USSR)

ABSTRACT: The authors classify service conditions for high-temperature thermocouples and discuss suitable materials with a view to extending the present range of temperature and composition conditions. They give e.m.f. vs temperature curves (Fig 1) for the following alloys (mol %): 20 $MoSi_2$ + 80 B_4C; 20 TiC + 80 $CrSi_2$; 20 TiC + 80 B_4C. The highest e.m.f. is obtained with systems of titanium or zirconium borides with boron carbide, the temperature dependence of which is linear above 300 °C, and these systems are stable. The authors propose a thermocouple design in which molybdenum silicide or titanium or zirconium boride or carbide or similar material forms the sheath. The sheath at the same time is one electrode of the couple, the other being a rod of e.g. boron carbide located inside the sheath. The junction is formed at the tip of the sheath by welding. Fig 3 shows the calibration curves for

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High-Temperature Semiconductor Thermocouples

TiB_2 - B - C; ZrB_2 - B - C; $MoSi_2$ - B - C. Leads are attached either by soldering to a silver-paste deposit or with the aid of copper clips. Laboratory tests of couples for 150 hours at 1600 °C showed their stability to equal that of platinum/platinum-rhodium couples tested at 1200°C but under otherwise similar conditions; production tests were carried out at the Alchevskiy metallurgicheskiy zavod imeni Voroshilova (Alchevsk metallurgical works im. Voroshilov); measuring open-hearth furnace waste-gas temperature showed their suitability for temperatures of 1800-1900°C under oxidizing conditions. The authors maintain that by suitable choice of materials a very wide range of requirements can be covered. For example a series of couples of borided graphite with borides are suitable for vacuum, inert or reducing atmospheres up to 2200-2300 °C, the e.m.f. rising linearly up to 90-120 mV from 5-6 at 300-400 °C.

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There are 3 figures and 16 references, of which 13 are Soviet, 2 German and 1 is English.

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SOV/180-59-6-20/31

High-Temperature Semiconductor Thermocouples

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR, Kiyev
(Institute of Metallo-Ceramics and Special Alloys, Academy of Sciences, Ukr. SSR, Kiyev)

SUBMITTED: June 29, 1959

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15(2)

AUTHORS: Samsonov, G. V., Kislyy, P. S. SOV/131-59-6-9/15

TITLE: Technology of Producing Tubes and Rods of Molybdenum Disilicide (Tekhnologiya izgotovleniya trub i sterzhney iz disilitsida molibdena)

PERIODICAL: Ogneupory, 1959, Nr 6, pp 276-278 (USSR)

ABSTRACT: For the production of tubes and rods of $MoSi_2$ a mold is used in which the mass is pressed through a nozzle, as is shown in figure 1. The unworked tubes and rods were dried for 1 - 2 days at room temperature and then sintered in Tamman furnaces in a hydrogen medium. In doing so, the unworked pieces were at first heated up to a temperature of 600 - 700°, halting time 30 minutes, and then the sintering process was finished at a temperature of 1950°, halting time 5 - 10 minutes. After that the products together with the furnace were cooled down to 900 - 1000°. A deficiency is the high electrical conductivity of the heating elements made of molybdenum disilicide. Experiments introducing silicon- -aluminum- and zirconium oxide in the layer were made to

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Technology of Producing Tubes and Rods of Molybdenum Disilicide SOV/131-59-6-9/15

increase the electric resistance. Tubules of molybdenum disilicide can be used for the production of electrodes for semi-conductor thermocouples. V. S. Sinel'nikova took part in this work (footnote 1). Figure 3 shows the characteristics of such a thermocouple. There are 3 figures, 1 table, and 4 Soviet references.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy and Special Alloys of the AS UkrSSR)

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Kisly, P.

18 (SOV/21-59-8-12/26

AUTHOR: Samsonov, G.V., Synel'nikova, V.S., Kysly, P. O.
(Samsonov, G. V., Sinel'nikova, V. S., Kisly, P. S.)

TITLE: Alloys of the Boron Carbide - Molybdenum Disilicide System

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1959, Nr 8, pp 866 - 868 (USSR)

ABSTRACT: The alloys of boron carbide with molytdenum disilicide posses a high and stable thermal e. m. f. which is used when creating high-temperature thermocouples [Ref. 1]. The boron carbide, however, is, at its high resistance to heat, [Ref. 2] not yet sufficiently resistant to oxidation at high temperatures. This calls forth the necessity to add components to the alloy which avert or stop its oxidation. In connection with this, the properties of boron carbide - molybdenum disilicide alloys were subjected to investigations based upon the method of metallography, X-ray patterns, conductivity and thermal e. m. f. Formation of the quadripartite phase Mo (B_1C_1, Si) is found. It has a very wide homogeneous region across which (from 10 to 50 mol.% $MoSi_2$ in alloys with boron carbide) electrical resistance

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Alloys of the Boron Carbide - Molybdenum Disilicide System

increases and thermal e. m. f. decreases, in accordance with the degree of defectiveness of the lattice of this phase. The investigation of alloys in view of their resistance to oxidation has shown (Photo 2), that an alloy which according to its composition corresponds approximately to the quadripartite chemical compound, possesses the highest resistance to oxidation. Additions of disilicide of less than 50 mol.% decrease the resistance of alloys to oxidation. There is one set of photos, 1 diagram and 5 references, 3 of which are Soviet, 1 American and 1 German.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy and Special Alloys of the AS of UkrSSR)

PERIODICAL: By V. M. Svechnikov, Member of AS UkrSSR

SUBMITTED: December 22, 1958

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B006/B070

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AUTHORS: Kislyy, P. S., Samsonov, G. V.

TITLE: The Diffusion of Boron in Carbon

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 8, pp. 1729-1732

TEXT: The authors have already performed preliminary experiments on the diffusion of boron in graphite and investigations of the properties of the boron carbide obtained in this way. It is found that by the diffusion of boron in graphite alloys are obtained which show greater solidity and lower brittleness than boron carbide obtained by compression under heat. These alloys have semiconductor properties, and can be utilized for the preparation of high temperature thermocouples. By the diffusion of boron into the surface of graphite samples, their corrosion resistance becomes noticeably higher, particularly at higher temperatures (Refs. 1-5). The purpose of the present work was to investigate the mechanism of diffusion and to determine its parameters. The object investigated was a cylindrical sample of spectroscopically pure graphite

Card 1/3

onto whose surface a 2 mm thick layer of a paste of amorphous boron was applied. After the samples had been dried at 150°C, they were enclosed in a graphite shell and preheated in an atmosphere of hydrogen (700 - 800°C, 60 - 80 min). After this treatment the samples were subjected to metallographic, chemical, and X-ray analyses. Further, the reverse process of diffusion of carbon in boron was investigated. For this purpose, boron samples of a porosity of 36% were employed. They were prepared by compression of boron powder and sintering at 1900°C. In this case there resulted a saturation of the carbon samples with carbon in 30 minutes in a vacuum oven at 1940°C. Experiments showed that in similar conditions the boron penetrates deeper in carbon (1.4 - 1.6 mm) than carbon does in boron (0.6 - 0.8 mm). This indicates a remarkably higher mobility of boron atoms. The diffusion coefficients were calculated to be $6.2 \cdot 10^{-6} cm^2/sec$ (B→C) and $1.8 \cdot 10^{-6} cm^2/sec$ (C→B). Numerical data for two samples showing boron content at different depths of the carbon sample (chemical analysis) are given in Table 1. Their graphical representation is given in Fig. 2. The boron concentration diminishes exponentially with depth. That a solid solution is formed due to

The Diffusion of Boron in Carbon

S/181/60/002/008/007/045
B006/BC70

diffusion, is shown by an X-ray analysis. Here the interplanar spacings of graphite lattice are measured as function of boron concentration (Fig. 3). Further, the temperature dependence of diffusion of boron in graphite is investigated (Fig. 4). D = 3.02 exp(-28625/T) is found to hold. Numerical values are given in Table 2. There are 4 figures, 2 tables, and 6 Soviet references.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy and Special Alloys of the AS UkrSSR)

SUBMITTED: October 20, 1959

89971

S/131/61/000/002/001/002
B 105/B206

15.2220 1273,1043

AUTHORS: Samsonov, G. V., Kislyy, P. S., Panasyuk, A. D., Strel'chenko, A. G., Khavrunyak, I. G., Serikova, G. N.

TITLE: Shield tubes from zirconium boride for immersion thermocouples

PERIODICAL: Ogneupory, no. 2, 1961, 72-74

TEXT: The article describes experiments and studies leading to the manufacture of shield tubes from zirconium boride which have a high thermal resistivity. Shield tubes produced from zirconium dioxide, which withstand immersion into molten steel at 1650-1720°C for a short time, were elaborated at the Leningradskiy tekhnologicheskiy institut imeni Lensoveta (Leningrad Technological Institute imeni Lensovet). Studies of their stability in molten cast iron and steel, made at the laboratoriya tugoplavkikh materialov (Laboratory for High-melting Materials) of the Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy and Special Alloys AS UkrSSR), showed that zirconium boride ZrB_2 is of extremely high thermal resistivity and thus well suited

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89972

Shield tubes from zirconium boride ... S/131/61/000/002/001/002
B105/B206

for shield tubes of thermocouples. Such a shield tube is schematically shown in Fig. 1. The blanks of the shield tube are dried and sintered in an electric furnace at a temperature of 2050-2200°C. The sintered shield tubes have a fine-grained fracture and a porosity of 5-12%. Shield tubes with an outer diameter of 11 and 16 mm and an inner diameter 4 and 11 mm were made. They were tested at the following metallurgical plants: zavod "Zaporozhstal'" ("Zaporozhstal'" Plant), zavod im. Dzerzhinskogo (Plant imeni Dzerzhinskiy), Alchevskiy zavod (Alchevskiy Plant), as well as the Kiyev plants: zavod "Bol'shevik" ("Bol'shevik" Plant) and zavod "Leninskaya kuznitsa" ("Leninskaya kuznitsa" Plant). When testing the shield tubes in molten cast iron at 1400 to 1450°C in a Kryptol furnace, it was found that they are only slightly covered by slag and not corroded, and that they maintain their initial structure. When tested during tapping of cast iron in a blast furnace, they withstand 15 tappings with a total stay of 10 hr 53 min in molten metal. In an open hearth furnace with basic lining, shield tubes are corroded by basic slags and destroyed after 30-40 min. The outer diameter of the shield tubes is not reduced during immersion in molten steel and a stay of

Card 2/5

40 45 min. In small open-hearth furnaces, shield tubes withstood the total melting time (2 hr) without any damage. Their thermal resistivity is determined by the number of immersions into the tank of the open-hearth furnace and is at least 15 to 20 immersions, permitting the temperature of the steel to be regulated during the entire heating-up period. At the Kiyevskiy armaturno-mekhanicheskiy zavod (Kiyev Plant for Fittings and Mechanical Equipment), zirconium boride shield tubes withstood 86 hr in molten brass at 850 ± 50°C without any damage. At the "Leninskaya kuznitsa" Plant, the same results were obtained during a test in molten bronze of the type AMU-10-2 (AMTs-10-2). Besides the authors, A. G. Petrenko, Ya. S. Gayvoronskiy, N. M. Tenishev, V. G. Tishchenko, I. R. Krichker, G. G. Bespalyy, G. A. Yasinskaya, as well as collaborators of the plants mentioned participated in this study. Shield tubes from silicon nitride (Si_3N_4) also show high stability in molten brass at 850°C. The high stability of zirconium boride shield tubes in molten steels and cast iron makes it possible to use them in tanks of open-hearth furnaces, blast-furnace channels, and steel ladles. Zirconium boride shield tubes showed high stability in molten bronzes and brass. Continuous temperature measurement of metals in melting furnaces can be

89971

Shield tubes from zirconium boride ... S/131/61/000/002/001/002
B105/B206

made with their aid. There are 3 figures and 6 Soviet-bloc references.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy and Special Alloys AS UkrSSR) Samsonov, G. V., Kislyy, P. S., Panasyuk, A. D.; Institut avtomatiki Gosplana USSR (Institute of Automation of the Gosplan of the UkrSSR) Strel'chenko, A. G., Khavrunyak, I. G., Serikova, G. N.

Card 4/5

KISLYY, P.S.; LAKH, V.I.; SAMSONOV, G.V.; STADNYK, B.I.; KHARENKO, R.F.; CHEKHOVICH, A.B.

Thermoelectric characteristics of high-temperature thermocouples with refractory electrodes. Izm.tekh. no.5:21-23 My '61. (MIRA 14:5)

(Thermocouples)

30316

S/115/61/000/010/005/005
E073/E535

245500

AUTHORS: Samsonov G V, Kraiyy P S and Panasyuk A D

TITLE: Thermoelectric properties of thermocouples with high melting point solid electrodes

PERIODICAL: Izmeritel'naya tekhnika, no 10 1961 32-34

TEXT: ZrC and ZrB_2 have the favourable combination of high strength, low electric resistance, good thermal conductivity, moderate coefficients of thermal expansion and a high resistance against the effect of aggressive media, including molten metals and slags. The authors describe the results of investigations of the thermoelectric properties of thermocouples with electrodes made of these materials. The following electrode compositions were used: 1) virtually stoichiometric ZrB_2 with a free carbon admixture of approximately 0.4%; 2) ZrC containing 85.1% Zr, 12.8% C total (1.62% free C), and 0.05% Fe; and 3) ZrC of the same composition as above after separation of the free carbon by means of a 2% soap solution. From these materials thermoelectrode specimens were prepared and coupled with platinum. Their thermal e.m.f. was determined after treatment for 10 and 20 hours at high

Card 1/2

Thermoelectric properties of ..

temperatures in H_2 and CO + H_2 media. The presence of free carbon sharply affects the stability of the thermal e.m.f. of ZrC. Determination of the variation with temperature of the thermal e.m.f. of ZrB_2 and ZrC showed that in a thermocouple with ZrC or ZrB_2 electrodes a virtually linear relationship exists between temperature and thermal e.m.f. (~ 8.7 mV/°C). Thermocouples based on these materials have only slight thermal e.m.f. fluctuations. The thermocouple was calibrated against another thermocouple in the temperature range 20 to 1200°C and by means of an optical pyrometer in the temperature range 800 to 2000°C. A graphite heater of a design which is illustrated in the paper was used; this enabled calibration up to 3000°C. The stability of the calibration curve was checked by holding the thermocouple at 1800°C in a hydrogen atmosphere. Subsequent re-calibration at 500, 1000, 1500 and 2000°C showed that at 2000°C the change did not exceed 25°C, i.e. it was of the order of 1%. There are 4 figures, 2 tables and 6 references: 5 Soviet and 1 non-Soviet.

Card 2/2

LAKH, V.I.; PROKHORENKO, V.Ya.; TEREBUKH, L.S.; KISLYY, P.S.; PANASYUK, A.D.; SAMSONOV, G.V.

Temperature measurement of the atmosphere of an aluminum electrolysis cell. TSvet. met. 34 no.8:38-40 Ag '61. (MIRA 14:9)
(Aluminum--Electrometallurgy)

S/226/62/000/002/004/010
I003/I203

AUTHOR: Kislyy, P.S., Panasyuk, A. D. and Samsonov, G. V.

TITLE Activated sintering of niobium carbide

PERIODICAL: Poroshkovaya metallurgiya, no. 2 1962, 38-43

TEXT: Niobium carbide is used in construction of high-temperature resistance furnaces and for high temperature thermocouples. Sintering of niobium carbide should be done at temperatures up to 3000°C which are, however, difficult to attain. This work investigates the possibilities of lowering sintering temperatures of niobium carbide poweders by activating the sintering process. Since additions of nickel fail to activate the process to any substantial extent, the authors used 270 mesh niobium carbide powder containing 88.5% of Nb and 11% of C with an addition of 1% of Fe and 2% of $CoCl_2$. Physicochemical properties are given of powders sintered in resistance furnaces at temperatures ranging from 1700 to 2600°C in an atmosphere of hydrogen. Their lower porosity as compared with that of niobium carbide powders sintered without any activating additions is stressed. There are 5 figures and 3 tables.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy and Special Alloys AS UkrSSR)

SUBMITTED: June 11, 1961

Card 1/1

S/226/62/000/002/007/010
I003/1203

AUTHOR: Kislyy, P. S.

TITLE: A device for measuring the shrinkage and the electric resistance of powders during the sintering process

PERIODICAL: Poroshkovaya metallurgiya, no. 2 1962, 74-76

TEXT: Because sintering is the last significant stage in the production of metal powders, it requires a process control, such as provided in the present article. This device permits direct measurements of shrinkage and electric resistance which properties reveal any faults in the micro- and macrostructure of the sintered material. The device consists of an original dilatometer of high-grade graphite, which also measures the electric resistance of the sample. It was first calibrated on copper and quartz samples, and a comparative measurement of electric resistance of copper showed that the maximum error of the device is 1.8%. There are 2 figures.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy and Special Alloys AS UkrSSR)

SUBMITTED: September 12, 1961

Card 1/1

39927

S/226/62/000/003/005/014
I003/I203

1.1600

AUTHOR Kislyy, P. S. and Samsonov, G. V.

TITLE Extrusion die-forming of pipes and rods from refractory metal powders

PERIODICAL Poroshkovaya metallurgiya, no. 3, 1962, 31–48

TEXT The article deals with the problem of extrusion die-forming of mixtures of refractory compounds with plasticizers, outlines the technological process of manufacture by a method never before used for refractory metal powders The initial conditions of the powders, the method of preparation of the mixtures, initial grain size, the type, amount, and method of introduction of the plasticizer, applied pressure and humidity of the powder and their effects on the properties of the finished products are discussed. There are 15 figures and 2 tables

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Powder Metallurgy and Special Alloys AS UkrSSR)

SUBMITTED January 4, 1961

Card 1/1

s/126/62/000/004/003/012
I003/I203

AUTHORS: L'vov, S.N., Belchenko, V.F., Kislyy, P.S., Verkhoglyadova, T.S. and Kosolapova, T.Ya.

TITLE: Electric properties of borides, carbides, and nitrides of chromium

PERIODICAL: Poroshkovaya metallurgiya, no.4, 1962, 20-25

TEXT: The electric properties of the above compounds have not been sufficiently investigated. In the present work the electric resistivity, the Hall effect, the thermal emf , the thermal coefficient of electric resistivity and the coefficient of heat conductivity h of all borides, and nitrides of chromium were investigated at room temperature. The influence of carbon, boron, and nitrogen on the electric properties of their compounds with chromium is in good agreement with the regularities displayed by the borides, carbides, and nitrides of all group IV-VI transition metals. There are 3 figures and 1 table.

ASSOCIATION: Khersonskiy gosudarstvennyy pedagogicheskiy institut im. N.K. Krupskoi i Institut metallokeramiki i spetsial'nykh splavov An USSR

Card 1/2

Submitted: Jan 1962

41898
S/226/62/000/004/007/012
E073/E203

4/4/74

AUTHOR: Kuliyi, P.S.

TITLE: The prospects for utilizing refractory compounds for the manufacture of high-temperature thermocouples

PERIODICAL: Poroshkovaya metallurgiya , no.4, 1962, 50-55

TEXT: The following thermocouples were prepared: MoSi$_2$/WSi$_2$ for temperature measurements in oxidizing media up to 1700°C, C/ZrB$_2$ for measurements of the temperature of molten metals, steels and slag and C/TiC for measurements in reducing and in carbonizing media at temperatures up to 2500°C. The testing of the above and of the ZrB$_2$/ZrC thermocouples in various media, showed that their emf changed after 155 hours of testing by values permissible according to technical specifications. The production of metal powder thermocouples with the same emf versus temperature values is rather difficult as these values are strongly influenced by even the smallest changes in the preparation and in the sintering of the metal powder wires. There are 4 figures and 2 tables.

~~Card 1/2~~ Inst. Metal Ceramics & Special Alloys, AS Ukr SSR

KISLYY, P.S.

Sintering of blanks by compacting high-melting compounds in dyes.
Poroshk.met. 2 no.5:70-78 S-O '62. (MIRA 15:11)

1. Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR.
(Powder metallurgy)

KISLYY, P.S.; L'VOV, S.N.; NEMCHENKO, V.F.; SAMSONOV, G.V.

Physical properties of the boride phases of chromium. Porosh. met. 2 no.6:50-53 N-D '62. (MIRA 15:12)

1. Khersonskiy gosudarstvennyy pedagogicheskiy institut imeni N.K.Krupskoy i Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR.

(Chromium boride—Testing)

L 18556-63 EPR/EWT(1)/BDS AFFTC/ASD Ps-4 WW

ACCESSION NR: AP3004262 S/0131/63/000/007/0311/0312

AUTHOR: Samsonov, G. V.; Kislyy, P. S.; Vlasov, K. B. 66

TITLE: Forming protective thermocouple caps

SOURCE: Ogneupory*, no. 7, 1963, 311-312

TOPIC TAGS: protective cap, thermocouple, press, carbide, boride, silicide, aluminum oxide, zirconium oxide

ABSTRACT: A press has been developed for forming one-piece protective caps for thermocouples used in steel and iron smelting. To form a cap, plastic material is placed in cylinder (5) (see Enclosure) and pressed with plunger (9) into the annulus between the centered hollow needle (4) and the interchangeable inset (2). The head of the cap is formed in the base (12). To allow for passing of air, a steel rod (8) is removed from the hollow needle. Using this press, the authors prepared protective caps of carbides, borides, silicides, aluminum oxide, and zirconium oxide. Orig. art. has: 1 diagram.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov, AN USSR (Institute of Metal Ceramics and Special Alloys, Academy of Sciences, Ukrainian SSR)

SUBMITTED:	00	DATE ACQ:	20Aug63	ENCL:	01
SUB CODE:	MA,ML	NO REF SOV:	001	OTHER:	000

Card 1/2

KOCHO, V.S., doktor tekhn.nauk; LAPITSKIY, V.I., doktor tekhn.nauk; PAYZANSKIY, L.D.; RESHETNYAK, Yu.S.; RUBINSKIY, P.S.; DRYSHLYUK, V.M.; KISLYY, P.S.

Measuring the temperature of the metal during the process of smelting in a converter with a top oxygen blow. Met. i gornorud. prom. no. 2:28-31 Mr-Ap '64. (MIRA 17:9)

AM5014981 BOOK EXPLOITATION UR/

Samsonov, Grigoriy Valentinovich; Kiselyy, Pavel Stepanovich

High-temperature non-metallic thermocouples and tips. Vysokotemperaturnyye nemetallicheskiye termopary i nakonechniki. Kiev, "Naukova dumka", 19[illegible]. 180 p. illus., biblio. (At head of title: Akademiya nauk Ukrainskoy SSR. [illegible]) [illegible] copies printed.

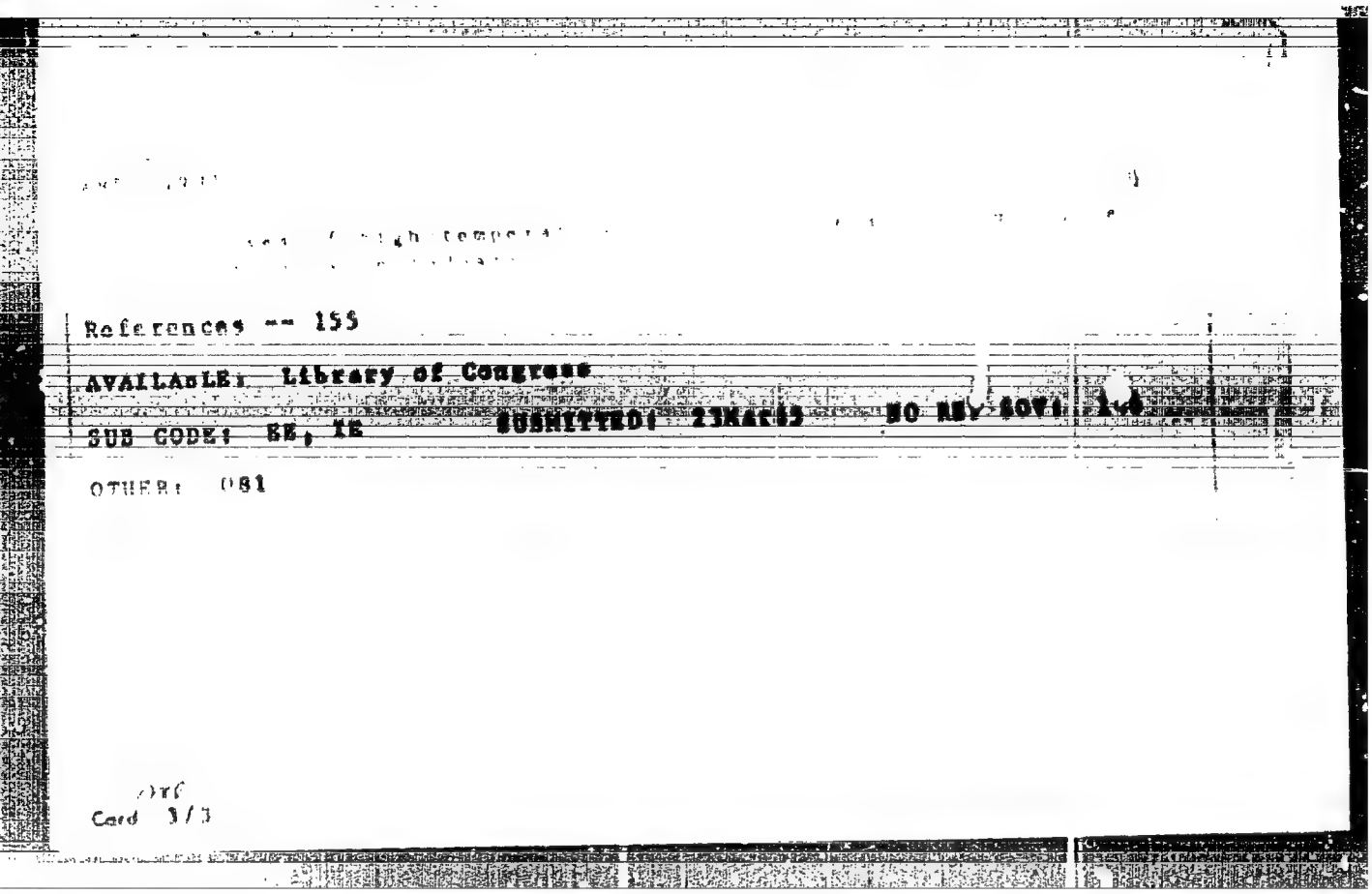
SUBJECT AREAS: heat transfer, metallic thermocouple, nonmetallic thermocouple, refractory compound, thermocouple, thermocouple sheath

PURPOSE AND COVERAGE: This book is intended for scientists and engineers conducting research in the field of physics and engineering and automation in metallurgy; it may also be useful to personnel in plant laboratories and to students and aspirants concerned with metallurgy and heat power engineering. The book describes methods for producing thermoelectrodes and thermocouples. Greater attention is given to high-temperature nonmetallic thermocouples and sheathing of metallic thermocouples. [illegible] persons are mentioned. There are 22 references [illegible] Soviet, 1 English, 22 unidentified, 18 German, 3 French and 1 Polish.

Card 1/3

TABLE OF CONTENTS [abridged]:

Card 2/3



References -- 15S

AVAILABLE: Library of Congress

SUB CODE: EE, IE SUBMITTED: 23MAR63 NO REF SOV: 1x6

OTHER: 081

Card 3/3

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BOOK EXPLOITATION

...evich (Doctor of Technical Sciences) ...

... Doctor of Technical Sciences, Professor, Corresponding Member, ...

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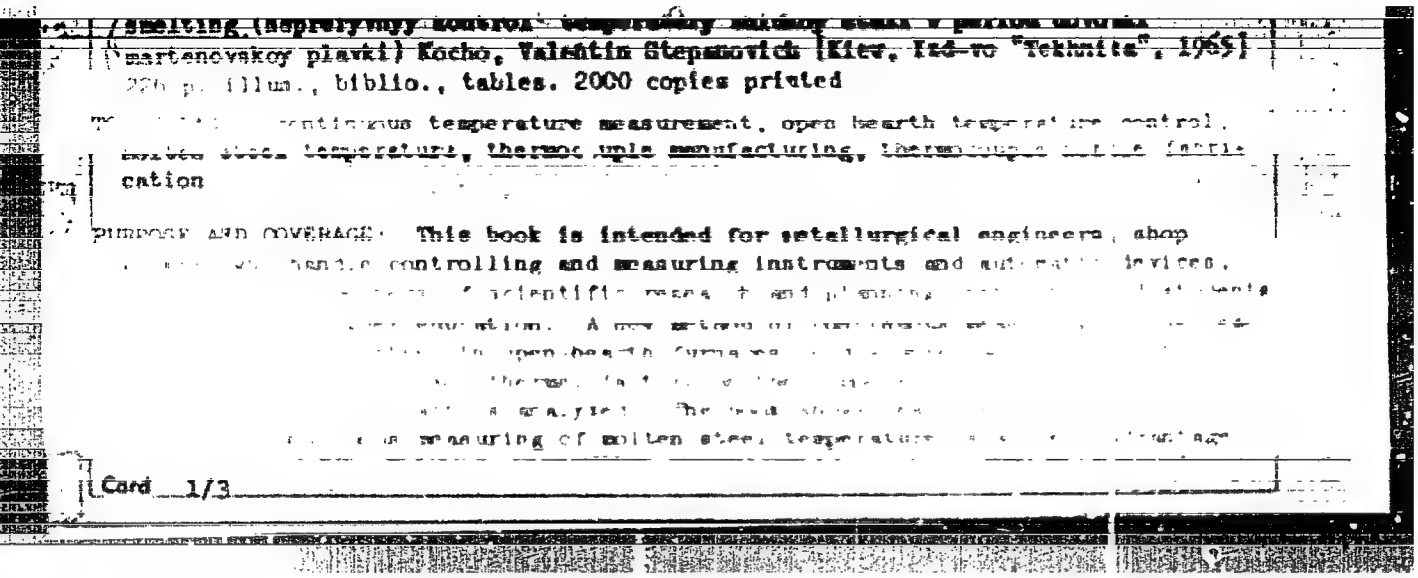

/Smelting (zaprymyy kontrol' temperatury stali v protsesse plavki
martenovskoy plavki) Kocho, Valentin Stepanovich [Kiev, Izd-vo "Tekhnika", 1965]
226 p. illus., biblio., tables. 2000 copies printed

continuous temperature measurement, open hearth temperature control,
steel temperature, thermocouple manufacturing, thermocouple cable fabrication

PURPOSE AND COVERAGE: This book is intended for metallurgical engineers, shop
controlling and measuring instruments and automatic devices,
scientific research and planning
In open hearth furnaces
thermocouples
analysis. The book
measuring of molten steel temperature

Card 1/3

L 63996-65
AP5016672

...standpoint of engineering economy. It boosts the furnace output, in-
...quality, reduces the amount of refractory material, and decreases

TABLE OF CONTENTS (Abridged):

AM5016672

SUBMITTED: [illegible]

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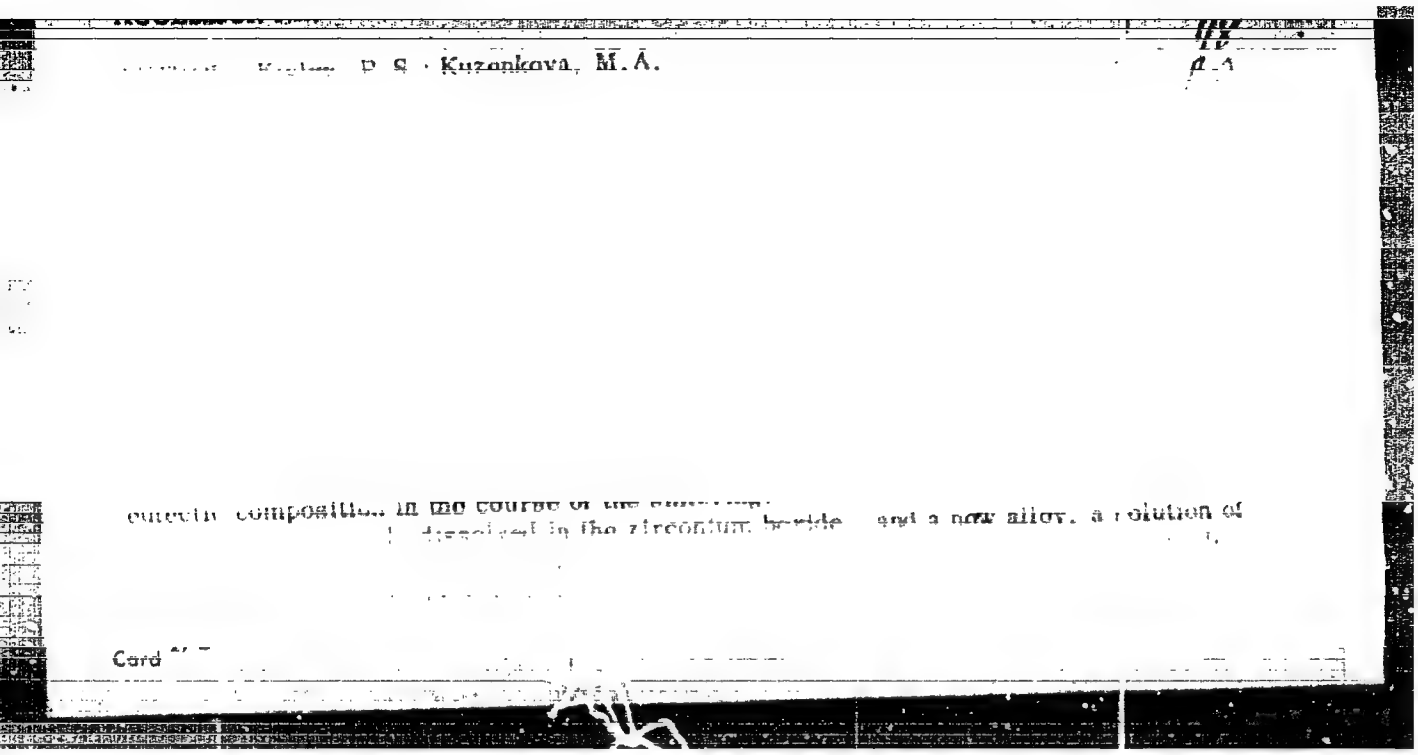
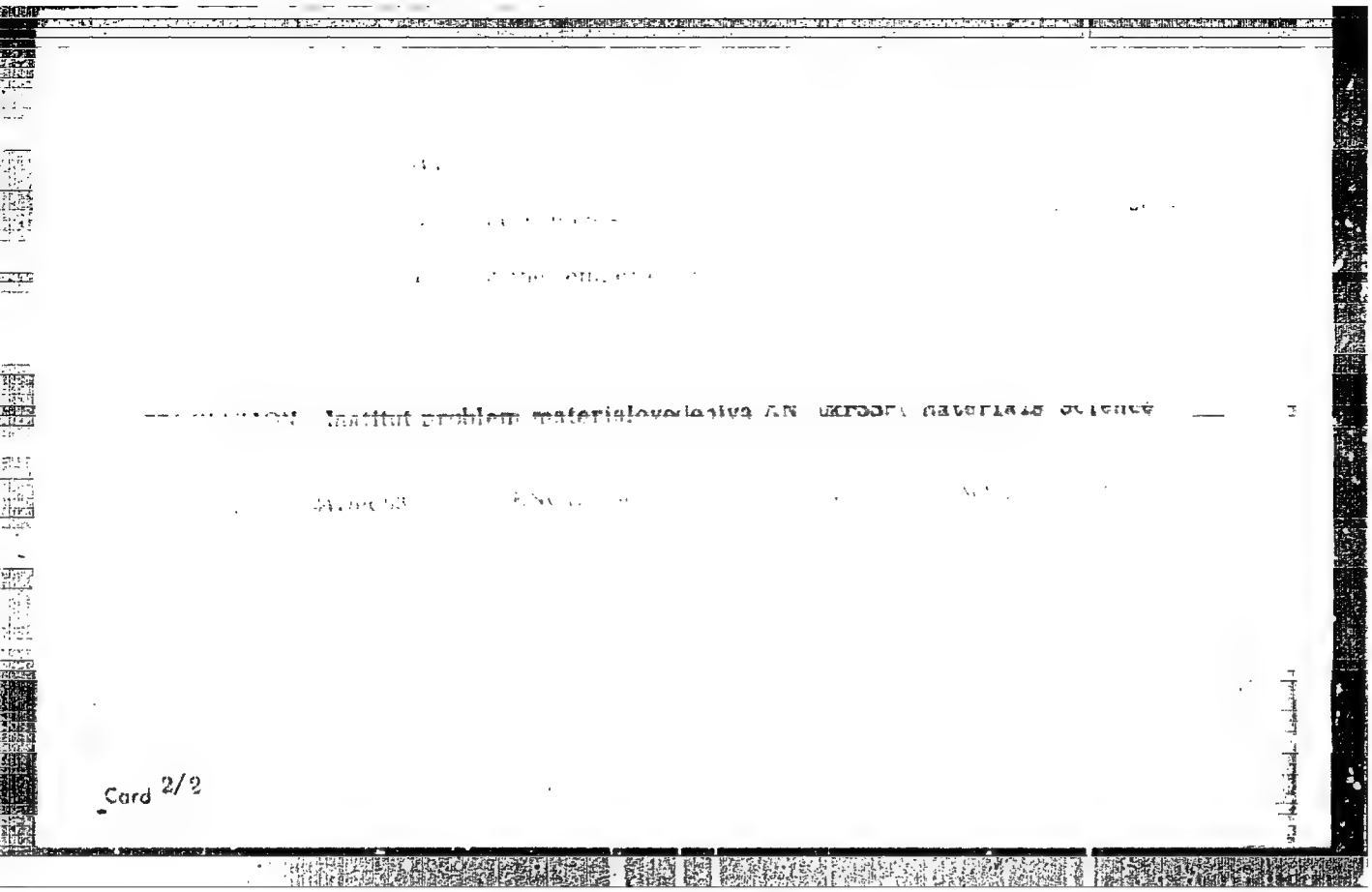


Kuzankova, M.A.

Card



Card 2/2

EWT(m)/EPF(n)-2/EWP(t)/EWP(k)/EWP(z)/EWT(b) Pf-4/

AT[illegible] UR/[illegible]

[illegible]anasyuk, A. D.; Kislyy, P. S.

[illegible] properties in the sintering of niobium carbide

[illegible]oshkovaya metallurgiya, no. 4, 1965, 18-24

TOPIC TAGS: niobium carbide powder, sintering, ammonium chloride, porosity, chlorine [illegible] compound, ball mill, fine disperse pulverization, diffusion coefficient, [illegible] viscosity

ABSTRACT: The manufacture of articles from powdered niobium carbide is greatly complicated by the fact that even at sintering temperatures as high as 3000°C NbC [illegible] a high porosity. The addition [illegible] sintering compounds [illegible] makes it [illegible] lower sintering temperatures. [illegible] sintering processes for pure niobium carbide as compared with niobium [illegible] with ammonium chloride has been added (1% NbC and 99% NbC powder). [illegible] was pulverized to a finer size in alcohol [illegible] in a ball mill. [illegible] measurements showed that the addition of NH4Cl [illegible]

Card 1/2

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ACCESSION NR: AP5010400

fineness of grinding and the size and shape of the particles, these parameters being the same as for pure niobium carbide. (This indicates that ... does not contribute to the adsorptional decrease in the strength ... carbide and to its fine-disperse pulverization. ... pulverized pure and NH_4Cl containing specimens of niobium carbide were then sintered in a tubular ... at gradually higher temperatures. The findings were used to calculate the diffusion ... coefficients of niobium in niobium carbide with and without the addition ... The results confirm that the addition of ammonium chloride ... the sintering process by creating a defective structure which ... intensification of the diffusion processes and the processes of dilatational ... thereby causing the shrinkage of pores. Orig. art. has: 5 figures, 4 tables.

ASSOCIATION: Institut problem materialovedeniya AN UkrSSR (Institute of Problems in ... of Materials, AN UkrSSR)

SUBMITTED: 24Sept63 ENCL: 00 SUB CODE: MM

NO REF SOV: 016 OTHER: 002

Pt-7/Pu-4/Pb-4 IJP(c) JD/WW/JG/AT/WH UR/0131/65/000/004/0028/0031

ACCESSION NR: AP5010414

AUTHOR: Samsonov, G.V.; Kislyy, P.S.

TITLE: Protective thermocouple jackets for the continuous regulation of the temperature of molten metals

SOURCE: Ogneupory, no. 4, 1965, 28-32

TOPIC TAGS: temperature regulation, foundry technology, thermocouple jacket, jacket material, zirconium diboride, liquid steel temperature, open hearth furnace

ABSTRACT: The Sektor tugoplavkikh materialov Instituta problem materialovedeniya AN UkrSSR (Refractory Materials Section of the Institute of Materials Science Problems, [illegible] has developed a technological process for the production of zirconium [illegible] jackets for thermocouples [illegible] of zirconium diboride in [illegible] and bottom-blown basement [illegible] of zirconium diboride has shown positive results in periodic tempering [illegible]

Card 1/2

ACCESSION NR: AP5019414

of liquid cast iron at the Volgogradskiy traktornyy zavod (Volgograd Tractor Factory). Studies made at the Kommunarek and other metallurgical plants showed that the continuous measurement of the temperature of the liquid metal in the bath of an open-hearth [illegible] by means of thermocouples with ZrO_2 jackets makes it possible to reduce the spoilage by 30%. Continuous temperature measurement permits the elimination of overheating of the metal, acceleration of the melting, and automation of temperature control. Orig. art. has: 5 figures.

ASSOCIATION: Institut problem materialovedeniya AN UkrSSR (Institute of Materials Science Problems, AN UkrSSR)

SUBMITTED: 00 ENCL: 00 SUB CODE: MM, TD

NO REF SOV: 021 OTHER: 000

Card 2/2

KISLYY, P.S.; KUZENKOVA, M.A.

Gas-tight protective coatings of thermocouples made of zirconium boride. Poroshk. met. 5 no.1[illegible] 6 Ja '65. (MIRA 18:10)

1. Institut problem materialovedeniya AN UkrSSR.

AP5008279 UR/0124/65/000/003/0088/0093

[illegible], V. S.; Mitrokhin, A. K.; Kislyy, P. S.; Antopko, V. M [illegible]

Performance of zirconium boride thermocouple tips in a Bessemer converter

SOURCE: Poroshkovaya metallurgiya, no. 3, 1965, 88-93

TOPIC TAGS: steel industry, melting temperature/ PR 30/6 thermocouple

ABSTRACT: The use of a multilayer thermocouple shield (made of sintered metal) in a Bessemer converter with an acid lining is discussed. This procedure had been previously used for measuring the temperature in the open hearth furnace and in a converter with nonacid lining. The purpose of this experiment was to develop a continuous temperature-indicating system by using thermocouple PR [illegible] tip exposed directly to the melt. [illegible] appears to be approximately equal [illegible] thermocouple assembly. This measuring process is compared with others previously used (particularly during several working cycles). An attached temperature-time diagram shows the moment when the bottom of the converter is lining the thermocouple tip emerges out of the metal. During this period the

Card 1/2

Accession Nr: AP5008279

[illegible] indicates the temperature of the lining. Deformation of the tip due to mechanical forces limits the use of a sintered [illegible] to approximately 2 hours. Orig. art. has [illegible].

ASSOCIATION: Kiyevskiy politekhnicheskiy institut (Kiev Polytechnic Institute); [illegible] Institut chernoy metallurgii (Donets Institute [illegible] Metallurgy); [illegible] materialovedeniya AN [illegible]

SUBMITTED: 11Mar64 ENCL: 00 SUB CODE: MM

NO REF SOV: 008 OTHER: 000

Card 2/2

KUZENKOVA, M.A.; KISLYY, P.S.

Obtaining and determining certain properties of alloys of zirconium boride with molybdenum disilicide. Ogneupory 30 no.6:255-59 Je '65. (MIRA 18:8)

1. Institut problem materialovedeniya AN Ukrainskoy SSR.

KISLYY, I.L.; KUZENKOVA, M.A.

Investigating the process of freezing-on thermocouple tips made of zirconium boride. Poroshk. met. 5 no.8:45-49 Ag '65. (MIRA 18:9)

1. Institut problem materialovedeniya AN UkrSSR.

KUZ'ENKOVA, M.A.; KISLYY, P.S.

Investigating the scale resistance of alloys of zirconium boride with molybdenum disilicide. Poroshk. met. 5 no.10: 75-79 O '65. (MIRA 18:11)

1. Institut problem materialovedeniya AN UkrSSR.

KIELYY, P.S.; KUZENKOVA, M.A.

Tips and high-temperature thermocouples with thermoelectrodes made of silicon carbide. Poroshk.met. 5 no.11:41-44 N '65.
(MIRA 18:12)

1. Institut problem materialovedeniya AN UkrSSR. Submitted February 23, 1965.

L 55951-65 EWT(m)/EWP(e)/EWP(w)/EWP(t)/EWG(m)/EWP(v)/EWP(k)/EWA(d)/EWP(n)-2/T/EPF/EWP(b)/EWP(c) Pe-4/Pu-4 IJP(c) JD/WW/JG

ACCESSION NR: AP5016036 UR/0226/65/000/006/0055/0059

AUTHOR: Kuzenkova, M. A.; Kislyy, P. S.

TITLE: Synthesis and some properties of alloys of zirconium boride with molybdenum disilicide

SOURCE: Poroshkovaya metallurgiya, no. 6, 1965, 55-59

TOPIC TAGS: zirconium boride, zirconium boride alloy, molybdenum disilicide containing alloy, alloy synthesis, alloy structure, alloy physical property

ABSTRACT: The structure and properties of sintered zirconium-boride base alloys containing from 5 to 25% molybdenum disilicide have been investigated. The maximum silicon content, even in alloys with 15, 20, or 25% $MoSi_2$, did not exceed 4.0% probably because of evaporation of silicon at high temperatures. Alloys containing up to 15% $MoSi_2$ had a single-phase structure. Their melting temperature varied from 2545 ± 25 to 2410 ± 25C, the microhardness from [illegible] to 2.35 to [illegible] kg/mm^2, and the resistivity from 32 to 27.4 μohm·m. The resistivity of the alloys increased linearly with increasing temperature (metallic conductivity). Alloys containing 25% $MoSi_2$ are two-phase alloys consisting of a zirconium-boride base solid solution with a hexagonal lattice, and another phase with a micro-

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ACCESSION NR: AP5016036

hardness of 3957—4232 n/mm^2. Because all the alloys are oxidation resistant up to 1500C, the field of application of zirconium boride can be significantly extended. Orig. art. has: 2 figures and 4 tables. [MS]

ASSOCIATION: Institut problem materialovedeniya AN UkrSSR (Institute of the Problems of the Science of Materials, AN UkrSSR)

SUBMITTED: 09Jul64	ENCL: 00	SUB CODE: IM	
NO REF SOV: 016	OTHER: 002	ATD PRESS: 4035	

Card 2/2

L 01803-66 EWP(e)/EWT(m)/EWP(w)/EWP(1)/EPF(n)-2/T/EWP(t)/ETI/EWP(k)/EWP(z)/EWA(b)
IJP(c) JD/WW/JG
ACCESSION NR: AP5020769 UR/0226/65/000/008/0045/0049

AUTHOR: Kislyy, P. S.; Kuzenkova, M. A. 44,55 44,55

TITLE: Immersion method of making thermocouple jackets from zirconium boride

SOURCE: Poroshkovaya metallurgiya, no. 8, 1965, 45-49

TOPIC TAGS: thermocouple, immersion thermocouple, thermocouple jacket, zirconium boride jacket

ABSTRACT: Zirconium-boride jackets for immersion-type thermocouples can be made by dipping a metallic pattern into a mixture of zirconium-boride powder (79.6% Zr, 17.6% B, 0.21% C_{tot}, 0.23% Fe) and paraffin, with oleic acid added as a surface-active diluent. The coefficient of packing $K_p = V_p/V_s$, where V_p is the volume of powder and V_s is the volume of semifinished product, was used as a criterion of the final quality of the semifinished product. The mixture containing 8—10% paraffin with 1% oleic acid was found to be the most suitable and was used for jackets with a wall thickness of 2—2.2 mm. Unsintered jackets had a K_p of 0.6, i.e., close to the theoretical K_p for spherical particles. Mixtures with a higher paraffin content, e.g., containing more than 25, 18, and 19% paraffin in mixtures with pure paraffin and 1 and 2% oleic acid, were structurally unstable. Paraffin was removed

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L 01803-66

ACCESSION NR: AP5020769

before sintering by heating the jackets, which were packed in roasted aluminum-oxide powder. This was followed by sintering. The finished jacket had a porosity of 10—12% and a bending strength of 150 Mn/m^2, which is almost equal to the density and bending strength of extruded and sintered jackets. Orig. art. has: 2 figures. [MS]

ASSOCIATION: Institut problem materialovedeniya AN UkrSSR (Institute of the Problems of the Science of Materials, AN UkrSSR)

SUBMITTED: 22Oct64 ENCL: 00 SUB CODE: IE, TD

NO REF SOV: 015 OTHER: 001 ATD PRESS: 4085

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L 7061-66 EWP(e)/EWT(m)/EPF(c)/EWP(i)/EPF(n)-2/EWP(t)/EWP(k)/EWP(z)/EWP(b)

ACC NR: AP5026275 IJP(c) JD/WW/JG/WB SOURCE CODE: UR/0226/65/000/010/0075/0079

AUTHOR: Kuzenkova, M. A.; Kislyy, P. S.

ORG: Institute of the Problems of the Science of Materials, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: Investigation of the oxidation resistance of alloys of zirconium boride with molybdenum disilicide

SOURCE: Poroshkovaya metallurgiya, no. 10, 1965, 75-79

TOPIC TAGS: zirconium boride, zirconium boride alloy, molybdenum disilicide containing alloy, alloy oxidation, oxidation resistance

ABSTRACT: Hot-extruded, pure zirconium boride (ZrB_2) with a porosity of 8%, and compacted and sintered ZrB_2 and alloys of zirconium boride with molybdenum disilicide, $(ZrB_{1.9})_{23}\cdot MoSi_{1.1}$, $(Zr_{1.7})_{13}\cdot MoSi_{1.2}$, and $(ZrB_{1.6})_8\cdot MoSi_{1.4}$, were oxidized in air at temperatures up to 1000C for up to 10 hr. Sintered ZrB_2 had a porosity of about 15%; the porosity of the alloys was within the limits of 5 to 13%. In the 800—1000C range the oxidation of pure ZrB_2 followed a linear rate. More porous ZrB_2 had an appreciably higher oxidation rate; specimens with a porosity of about 15% completely disintegrated after 8—10 hr exposure. At 1200—1400C the oxidation rate was higher but the specimens did not disintegrate because of the formation of a dense, protective, oxide film which greatly impedes the oxygen diffusion. The film

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L 7061-66

ACC NR: AP5026275

disintegrates at 1450C. The oxidation rate of zirconium boride-molybdenum disilicide alloys at temperatures of about 1000C followed a pattern similar to that for pure ZrB_2. At high temperatures, up to 1500—1550C, dense, oxidation-resistant films are formed at the surface of the base metal. The films are continuous, with a small number of closed pores, adhere strongly to the base metals, and effectively block the access of oxygen to the base material. The films formed at 1600C have interconnected pores which reach the metal surface, and the oxidation rate changes to linear. Thus, the alloys of zirconium boride with molybdenum disilicide have very high oxidation resistance and can be used at temperatures up to 1500—1550C. Orig. art. has: 4 figures and 1 table. [MS]

SUB CODE: MT, IC/ SUBM DATE: 09Jul64/ ORIG REF: 005/ OTH REF: 003/ ATD PRESS: 4144

Card 2/2

KISLYY, P.S.; KUZENKOVA, M.A.; SHTAYNLYAUF, G.I.; SOLOVYKH, M.I.

Thermocouple tips for continuous temperature control in copper smelting furnaces. Ogneupory 30 no.9:36-39 '65.

(MIRA 18:9)

1. Institut problem materialovedeniya AN UkrSSR (for Kislyy, Kuzenkova). 2. Balkhashskiy gornometallurgicheskiy kombinat (for Shtaynlyauf, Solovykh).

KUZ'ENKOVA, M.A.; KISLYY, P.S.

Preparation of zirconium diboride. Poroshk.met. 5 no.12:8-12 D '65. (MIRA 19:1)

1. Institut problem materialovedeniya AN UkrSSR. Submitted March 26, 1965.

L 21301-66 EWP(e)/EWT(m)/EPF(n)-2/EWP(t)/EWP(k) IJP(c) JD/WW/JG

ACC NR: AP6007286 SOURCE CODE: UR/0226/66/000/002/0046/0055

AUTHOR: Kuzenkova, M. A.; Kislyy, P. S.

ORG: Institute of Problems of Metal Science, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR

TITLE: Mechanism of shrinkage of zirconium diboride in the process of sintering

SOURCE: Poroshkovaya metallurgiya, no. 2, 1966, 46-55

TOPIC TAGS: zirconium compound, sintering, isothermal transformation, surface tension

ABSTRACT: A description is given of the regularities of shrinkage of zirconium diboride during the process of sintering. It is established that zirconium diboride, like other brittle materials, has the same shrinkage in the direction of application of the pressing forces and in the radial direction. On the basis of the kinetic dependences of the shrinkage and the changes in porosity, it is shown that with isothermal processing of up to 30 minutes intense shrinkage of zirconium diboride may be described as a process of sliding along grain boundaries under the effect of surface tension forces. With isothermal processing of over 30 minutes shrinkage is due to viscous flow caused by directed diffusion displacement of the atoms under the effect of the gradient of the vacancies on the pore surfaces and the grain boundaries. The presence of dodecaboride in zirconium diboride activates shrinkage in connection

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L 21301-66

ACC NR: AP6007286

with the speeding up of diffusion processes on the grain boundaries. Orig. art. has: 8 figures, 4 formulas and 1 table. [Author's abstract.]

SUB CODE: 11, 13/ SUBM DATE: 05May65/ ORIG REF: 017/ OTH REF: 018/

Card 2/2

L 21144-66 EWT(m)/EPF(n)-2/T/EWP(t) IJP(c) JD/WW/JG
ACC NR: AP6001468 SOURCE CODE: UR/0226/65/000/012/0008/0012

AUTHORS: Kuzenkova, M. A.; Kislyy, P. S. 4/2 B

ORG: Institute of Problems of Metal Science AN UkrSSR (Institut problem meterialovedeniya AN UkrSSR

TITLE: Preparation of zirconium diboride 27 27

SOURCE: Poroshkovaya metallurgiya, nr. 12, 1965, 8-12

TOPIC TAGS: zirconium, diboride, boron, carbide, metallographic analysis, x ray analysis, reduction

ABSTRACT: On the basis of x-ray and metallographic analyses 18 it is shown that zirconium diboride, obtained by the method of boron carbide reduction at temperatures above 1650C, contains about 4.94 ± 0.12% ZrB_{12}. One-phase zirconium boride may be obtained at temperatures below 1650C or at high temperatures with subsequent slow cooling (6--8 degrees/min) within a temperature range of 1650--1400C. The Microhardness of zirconium dodecarboride was determined as 45 ± 1.5 Gn/m^2. Orig. art. has: 2 tables, 3 formulas. (Based on author's abstract.) (AJM)

SUB CODE: 07, 11/ SUBM DATE: 26Mar65/ ORIG REF: 006/ OTH REF: 010/

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L 31930-66 EWP(e)/EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) JD/WW/JW

ACC NR: AP6015348 (N) SOURCE CODE: UR/0226/66/000/005/0016/0023

AUTHOR: Kislyy, P. S.; Kuzenkova, M. A.

ORG: Institute for Problems in the Science of Materials AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: Sintering of zirconium diboride with molybdenum alloys

SOURCE: Poroshkovaya metallurgiya, no. 5, 1966. 16-23

TOPIC TAGS: sintering, zirconium alloy, molybdenum alloy, activation energy, shrinkage, zirconium molybdenum alloy

ABSTRACT: The article deals with the shrinkage of samples from mixtures of zirconium diboride with 5-, 10-, and 15-% molybdenum in the process of slow heating to temperatures 1800C or during the initial period of sintering. With rapid heating to 1700-1750C, growth of samples (rather than shrinkage) is observed during the formation of a solid solution of Mo in ZrB_2, due to heterodiffusion. The activation energy of the shrinkage process, based on the computation of the shear viscosity, equals, respectively, 367 ± 48, 352 ± 28, and 379 ± 46 kj/mol for ZrB_2 alloys with the 5-, 10-, and 15% molybdenum, i.e., less than the activation energy in the shrinkage of zirconium diboride (678 ± 55 kJ/mol), which indicates that the presence of molybdenum activates the diffusion processes during sintering. Orig. art. has: 5

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L 31930-66
ACC NR:AP6015348

figures, 2 formulas, and 1 table. [Translation of author's abstract] [AM]

SUB CODE: 11/ SUBM DATE: 14Nov65/ ORIG REF: 008/ OTH REF: 003

Card 2/2 MT

L 37048-66 EWI(e)/EWT(m)/T/EWP(t)/ETI IJP(c) JD/WW/JG

ACC NR: AP6013340 (A) SOURCE CODE: UR/0363/66/002/004/0617/0625

AUTHOR: Kislyy, P.S.; Kuzenkova, M.A.

ORG: Institute of Materials Science Problems, Academy of Sciences UkrSSR (Institut problem materialovedeniya Akademii nauk UkrSSR)

TITLE: Study of the conversion of zirconium dodecaboride into zirconium diboride

SOURCE: AN SSSR. Izvestiya. Neorganicheskiy materialy, v. 2, no. 4, 1966, 617-625

TOPIC TAGS: zirconium compound, boride

ABSTRACT: The conversion of ZrB_{12} into ZrB_2 was studied by dilatometric, thermographic, and microstructural methods. It was shown that during heating, ZrB_{12} converts into ZrB_2 in the 1530 — 1650C temperature range. The transformation is associated with a decrease in volume, evolution of heat, and increase of general porosity. The kinetics of the transformation are determined by pure diffusion processes. The generation of centers of the new phase is observed in the volume of the matrix at the site of micropores and other defects. The diboride formed accretes coherently around the primary grain of diboride, and thus the latter increases in size. Pores are formed in place of the dodecaboride grains. The coefficient of linear expansion of zirconium

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ACC NR: AP6013340

dodecaboride was found to be 28 x 10^{-6} deg^{-1} in the 1600 — 2200C range. Orig. art. has: 5 figures.

SUB CODE: 11 / SUBM DATE: 30Aug65 / ORIG REF: 004 / OTH REF: 006

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L 36311-66 EWP(k)/EWT(m)/EWP(e)/EWP(t)/ETI IJP(c) JD/WW/JW/JG

ACC NR AP6017097 (A) SOURCE CODE: UR/0226/66/000/001/0012/0016

AUTHOR: Kuzenkova, M. A.; Kislyy, P. S.

65
64
B

ORG: Institute for Problems in Science of Materials, AN UkrSSR (Institut problem materialovedeniya AN

TITLE: Growth of zirconium diboride grains during sintering

SOURCE: Poroshkovaya metallugiya, no.1, 1966, 12-16

TOPIC TAGS: zirconium compound . grain growth, sintering, shrinkage, surface tension, activation energy, boride

ABSTRACT: This paper presents the results of the investigation of growth of zirconium diboride grains during sintering. It is assumed that during the initial period of sintering (about 5 minutes), the grain growth is conditioned by the mechanism of migration of the particles under the effect of surface tension forces causing grains to combine on polygonized borders. At sintering temperatures exceeding 1800C, very intensive shrinkage is observed in the zirconium diboride samples with isothermal holding up to 30 min. Actually, with 1 to 2 min at temperatures from 2100—1700C, the average grain size is found

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L 36311-66

ACC NR: AP6017097

to increase by 140%. The activation energy of grain growth equals 120± 40 kJ/mol. Orig. art. has: 6 figures and 3 formulas. [Based on author's abstract] [AM]

SUB CODE: 11/ SUBM DATE: 05May65/ ORIG REF: 002/ OTH REF: 017/

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L 46665-66 EWT(d)/EWP(e)/EWT(m)/EWP(v)/EWP(t)/ETI/EWP(k)/EWP(h)/EWP(l)

ACC NR: AP6009574 (N) SOURCE CODE: UR/0226/65/000/011/0041/0044

IJP(c) JD/WW/JG/WB/AT/WH

AUTHOR: Kislyy, P. S.; Kuzenkova, M. A.

94
92
B

ORG: Institute for the Study of Materials, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: Silicon carbide-tipped high-temperature thermocouples with silicon carbide thermoelectrodes

SOURCE: Poroshkovaya metallurgiya, no. 11, 1965, 41-44

TOPIC TAGS: silicon carbide, thermocouple, high temperature material, corrosion protection, thermoelectromotive force

ABSTRACT: On the basis of a survey of literature data it is shown that SiC prepared from SiC powder and carbon black is a virtually nonporous material and, when used as the material of thermocouple tips and thermoelectrodes, it is superior to high-temperature ceramics with respect to use in oxidizing and, especially, redox media, since it resists intercrystalline corrosion which causes ceramic thermocouple tips to lose their imperviousness to gas within a little as 10-12 hr of operation at 1700-1800°C. SiC of this kind displays constant physico-

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